TriQuint & Philips Semiconductor partner for InGaP HBTs

Philips Semiconductors (Eindhoven, The Netherlands) and TriQuint Semiconductor, Inc., (Hillsboro, OR, USA) have signed an agreement paving the way for a strategic partnership that guarantees Philips Semiconductors controlled access to TriQuint's InGaP HBT 150 mm wafer processing facilities, and provides for joint development of future advanced high-performance process technologies.

The agreement provides Philips Semiconductor important access to the technology-of-choice for critical components in the power amplifier (PA) and front-end modules that it designs and manufactures for the mobile phone industry, while ensuring that TriQuint will enhance its position as a leading supplier for GaAs devices.

"Today's mobile phone manufacturers increasingly look to modules as a way of simplifying their design and production process and guaranteeing RF performance," said Thierry Laurent, Senior VP of Mobile Communications at Philips Semiconductors.

"In a PA you have the opportunity to mix a range of technologies in order to offer customers the very best price/performance ratio. We believe that InGaP HBT is the best technology in which to implement components such as the output stage of linear and high-efficient power amplifier modules and front-end modules."

Bruce Fournier, VP and GM of Foundry Services at TriQuint, commented, "Philips' strong RF market presence offers us increased manufacturing volumes starting with our current, second-generation InGaP HBT process. This compliments our strategy of driving for the lowest manufacturing cost structure. Additionally, their success in mobile wireless applications provides market driven insight for advanced technology development in the area of InGaP HBT and beyond.

"With advanced technology and world-class manufacturing efficiency, we expect this partnership to be a very competitive force in the GSM and CDMA markets."

Both partners will sell their own products in the market. Early collaboration has already resulted in a new W-CDMA PA module (the BGY402 is sampling now) and PA/FE modules for GSM phones available from Philips. TriQuint is currently shipping PA products into the CDMA market and offers this InGaP HBT process, as well as other GaAs processes to the market through its open foundry.

Future development of advanced processes will focus on consumer applications for mobile communication markets. This new agreement cements a long-term relationship between the two companies since 1996, combining TriQuint's wealth of knowledge in advanced semiconductor technology with Philips Semiconductors' extensive RF design and applications know-how in the production of RF modules.

"TriQuint is a particularly attractive partner for us because they are a mass volume manufacturer of GaAs semiconductors. They have the ability to engineer and grow the epilayers on which these advanced devices are fabricated, which not only means they can control device quality, but also puts them in a position to push forward new process developments. Furthermore, TriQuint has a renowned R&D activity in the field of III-V semiconductor materials that can be well combined with Philips R&D in RF systems," said Laurent.

Philips Semiconductors is one of the world's leading suppliers of RF modules to the mobile telecoms market, employing a mix of technologies to create products with highly competitive price/performance ratios. TriQuint's InGaP HBT technology will enhance this portfolio to produce the highly linear, high efficiency output devices required in RF power amplifiers for high data-rate 2.5G and 3G systems such as EDGE and UMTS.

Combined with Philips Semiconductors' high-performance RF silicon transistors, and the passive component integration capabilities provided by its new PASSI process, this will allow the production of small size RF modules with a very low production spread in their RF characteristics, and extremely stable performance over time and temperature.

Technology: Microelectronics

Hittite Microwave (Chelmsford, MA, USA) has introduced a highly efficient HBT MMIC power amplifier, which operates between 4.4 and 6.0 GHz is packaged in a low cost, leadless SM package with an exposed base for improved RF and thermal performance. The HMC415LP3 provides 20dB of gain and +26dBm of saturated power at 34% PAE from a +3 V supply. Vpd can be used for full power down or RF output power/current control. The HMC407MS8G is ideal for usage in UNII and HiperLAN applications.

Microsemi Corp., has officially changed the name change for its IC businesses located in Carlsbad, Garden Grove, Irvine and Los Angeles, California. The new name, **Microsemi Integrated Products**, provides a uniform identity for circuit design centres in Carlsbad and LA, previously known as Microsemi MicroPower and Micro WaveSys, respectively, for the analog/mixed signal design and manufacturing operations of Linfinity Microelectronics in Garden Grove, and for the product development centre in Irvine.

TriQuint Semiconductor (Hillsboro, OR, USA) introduced a new high power transmit amplifier for Satellite Ground Terminal and millimetre-wave digital radio applications. It is for use as a transmit HPA in broadband satellite ground terminal applications and digital radio applications requiring high linear power. Due to the power and linearity performance available from the single chip solution, subsystem integrators can replace MCMs thereby decreasing product complexity and cost.

Technology: Microelectronics

The semiconductor products business unit of **SatCon Technology Corp.** (Cambridge, MA, USA) launched a high speed, 5.7 GHz, RF power amplifier for wireless LAN applications at the Wireless Systems Design Conference and Expo in San Jose, CA, USA. Using innovative design and packaging, it offers +10dB gain, 4 W of output power, with output power at 1dB compression (P1) of +36dBm typical, and a price compatible with most commercial and industrial applications.

The TGA8652 Modulator Driver/Amplifier from **TriQuint Semiconductor, Inc.** (Hillsboro, OR, USA) is targeted at high-speed optical networking applications. The high performance SM device is targeted for the OC192/STM64 telecoms market. It is capable of driving a Mach-Zehnder optical modulator at bit rates through 12.5 Gbit/s, providing overhead for the most comprehensive forward error correction algorithms. The IC has been designed into several OC192/STM64 optical networking products by leading telecom systems and subsystems manufacturers. Production purchase orders have been received and the TGA8652 is currently shipping in pre-production volumes, ramping to full volume production in the second quarter of 2002.

EV Group (EVG) Austria announced the availability of the industry's first 300 mm SOI Production Bonding System. It will be a presentation highlight at the EVG booth # A4.544 at SEMICON Europa 2002. The EVG®850 SOI bonder offers a unique technology developed for high-volume 300mm SOI wafer production. It integrates all the essential process steps to manufacture world-class, high-yield SOI bonded wafers.

World's first true global roaming chipset

The Qualcomm Inc., (San Diego, CA, USA) radioOne 6300 chipset, consists of the RTR6300, RFL6000 and RFR6000 direct conversion multimode ICs. It provides a fully integrated radio transceiver/transmitter that bridges 2G and 3G technologies, operating on systems using GSM/GPRS, CDMA2000 and gpsOne position location technologies.

"The radioOne 6300 chipset is the world's first true global roaming chipset," said Don Schrock, president of QUALCOMM CDMA Technologies. "It will allow manufacturers to make multimode, multiband devices more cost-effectively and support carriers with handsets designed for the growing number of subscribers who wish to roam across CDMA and GSM networks."

The radioOne Zero IF architecture eliminates the need for IF components - including IF ICs, IF SAW filters and IF VCOs - thereby reducing PCB area and bill of material costs for future wireless handsets and other devices, enabling more cost-effective multimode, multiband handsets.

The RTR6300 chip provides an integrated GSM/GPRS transceiver for GSM and DCS bands. The GSM receivers consist of LNAs, DC mixers and filtering, while the GSM transmitters consist of an upconversion modulator and offset PLL. Also integrated in the RTR6300 chip is a dual-band CDMA2000 1X transmitter for both cellular and PCS bands. The RTR6300 chip is fabricated with a SiGe BiCMOS process, thus permitting high linearity and low power consumption, and is available in a 7 x 7 mm bump chip carrier 48 package.

Samples of the radioOne 6300 solution are expected to be available in the fourth quarter of calendar 2002.

Hexawave adds switch quartet

Hexawave, the Hsinchu, Taiwan-based supplier of wireless RF and microwave components, has expanded its wireless devices portfolio by unveiling four new SPDT reflective switches for WLAN, Bluetooth products, CDMA, TDMA, GSM and W-CDMA. The company also announced a SPDT terminated switch for base stations from DC to 2.5GHz.

"Wireless handsets and Short Range Wireless market are growing rapidly," said Yie-Der Shen, President of Hexawave. "The market has been asking for low-cost, world-class RFIC solutions, this new switch line extends our commitment to offering cost effective with advanced performance products and provide the benefits for customers to achieve economics-of-scale in purchasing by leveraging Hexawave's volume production capabilities."

Atmel second sources Motorola SiGe:C and copper processes

Atmel Corp., (San Jose, CA, USA) and Motorola's (Phoenix, AZ, USA) Semiconductor Products Sector have formed an agreement to second source Motorola's 0.35 micron RF BiCMOS SiGe:C and copper inductor technologies for customers. The process uses advanced SiGe:C and copper inductor metal layers to implement a state-of-the-art process technology for advanced RF designs. This technology is capable of supporting operating frequencies for next generation cellular, WCDMA or UMTS, wireless LAN and 802.11a markets.

This sophisticated technology is engineered to enable the use of advanced direct conversion architectures for cellular phone applications, to allow the design of cost effective solutions for 802.11a and Hyperlan2 applications, and to support the data rates necessary for the OC-192 next generation of optical data transmission standard.

Atmel and Motorola have begun transferring the process technologies to Atmel's high volume 8-inch fab in Rousset, France, where Atmel intends to have the technology operating in the fourth quarter of 2002. The process transfer is planned to be database compatible and electrically equivalent, to allow customers to design products for manufacture at either the SPS or Atmel wafer fabrication facilities.

George Perlegos, Atmel's president and chief executive officer said, "The signing of this licensing agreement extends the cooperative second sourcing process strategy that we have developed with Motorola's SPS over the past five years. It offers our customers multiple supply lines and significant cost savings in design. Atmel is delighted to be associated with Motorola's SPS in this venture."